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COMPANION-SCREEN DOCKING FOR "PULL-FORWARD" PORTABLE COMPUTERS

HP INC

Companion-Screen Docking for “Pull-Forward” Portable Computers

Abstract: An easy, ergonomic, one-action docking system for pull-forward portable computers.

This disclosure relates to the field of portable computers.

A technique is disclosed that provides easy docking for pull-forward portable computer designs via one-action docking to an arm in the display.

Current docking solutions require the portable computer to be placed on the desk, either directly or on a pedestal, when docked. Such a docking solution often takes up valuable workspace on the desk and adds to clutter, both of which can diminish the productivity of the user.

Furthermore, the portable computer often cannot be effectively used when in the docked mode. For example, the portable computer either has to be closed, or the pedestal is not high enough, or the portable computer has to be placed where its screen is not at the user's eye level. These configurations can also affect the user's well-being if their posture is incorrect.

According to the present disclosure, and as understood with reference to the Figure, the display 10 includes an arm 20 that in the closed position (not shown) is flush with a surface of the display 10. The arm 20 extends from the side of the display 10 or can slide out from the top of the display 10. In the extended mode, the arm 10 reveals a USB-C connector, either in the back (for landscape docking) or the side (for portrait mode), and a latch mechanism.

A portable computer 30, such as for example a notebook or laptop computer, can be docked to the display 10 in either landscape or portrait mode. While the computer 30 is docked, the arm 20 can be adjusted such that the computer 30, in tablet mode, is at the correct height for the user, making it easy to use and postural correct. In docked mode, the computer 30 becomes a second or companion screen. When the portable computer 30 is docked it acts as a companion display and computing engine. Sensors in the portable computer 30, such as for example the camera, are operational when the portable computer 30 is docked to the display 10. This is useful when such sensors are not available in the display 10 itself.

In some cases, the portable computer 30 has a latching mechanism, for example magnetic or mechanical, that latches the computer 30 to the arm 20. For example, the computer 30 may be pressed into the arm 20 via which the USB-C port and latch engage.

The arm 20 can be adjusted up or down to position the screen of the portable computer 30 at the right height for the user. This adjustment may be manual or motorized. Since the portable computer 30 is at the right height for the user, sensors on the portable computer 30 such as like the camera (for video conference or presence detection) or ToF (for locking or unlocking the portable computer 30) can be used. The combined portable computer 30 and display 10 can behave as one device or as separate devices. Using a wireless keyboard and mouse would further declutter the user's desktop by eliminating wires on the desk where power and/or connectivity are provided by the display 10.

In another embodiment, another type of computing device may serve as the docking station, rather than the display 10. One example is a multifunction printer. In this case, there could also be sharing of computing and other resources between the portable computer 30 and the other computing device.

In yet another embodiment, instead of a pull-forward design, the technique may be applied analogously to computers with 360-based form factors

The disclosed technique advantageously allows the computer to be easily docked with one action. It elevates the computer off the display, so there is no footprint on the desk thus leaving the deck uncluttered, and the computer screen can serve as a companion display. The user can easily position the portable computer at the height and line/field of view that is easy to use and ergonomically sound. If a wireless keyboard and mouse are used with the display, then there are no wires on the desk either.

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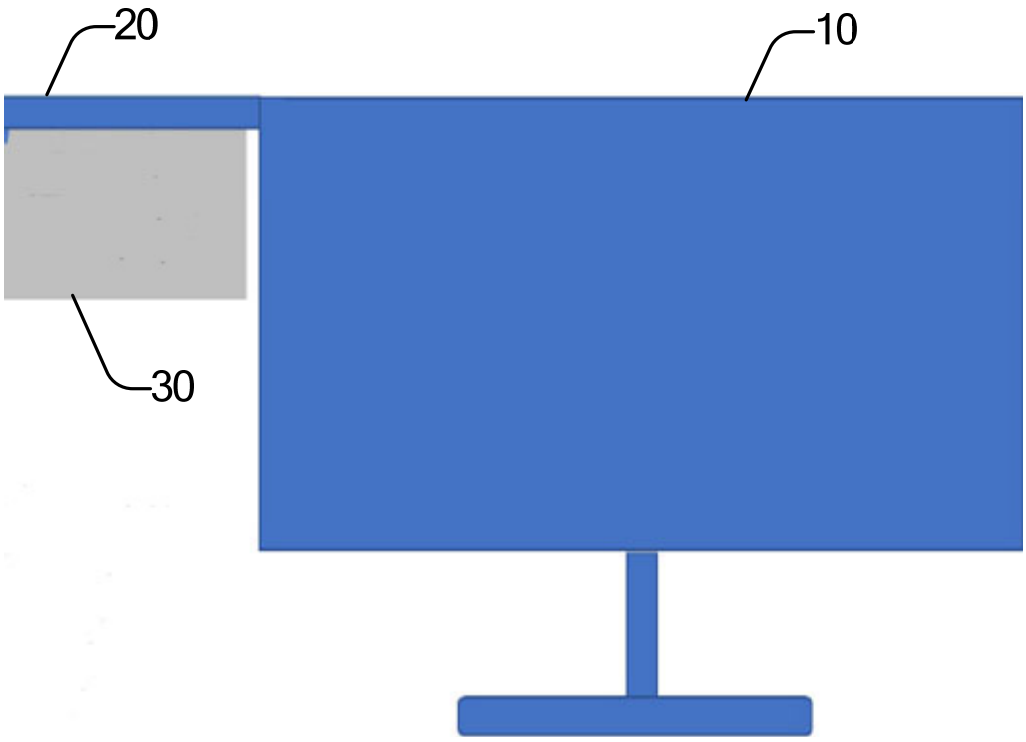
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